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Alphabet Letter Naming in Early Kindergarten Children

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Abstract

The ability of children during the first month of kindergarten to correctly recognize and identify the letters of the alphabet was examined. A total of 444 children were tested and only the data from children who could correctly recognize one or more, but less than 26, letters were analyzed. Children were grouped according to the number of letters known (e.g., 1-5, 6-10, etc.). An analysis of the data revealed that "x" and "o" were correctly identified most often, regardless of whether they were presented in upper or lower case. Examination of the data for patterns across children provided a basis for excluding several possible explanations for the order of alphabet letter name acquisition. The implications of the data for educational practices are discussed.

ALPHABET LETTER NAMING IN EARLY KINDERGARTEN CHILDREN

One of the first formal learning tasks that children engage in is learning the alphabet. An analysis of the strategies children use in approaching this early learning task would seem to be critical to our understanding of the basic learning process. Indeed, much research effort has been devoted to this problem. Some researchers have been concerned with letter form discriminability as it relates to learning the alphabet (e.g., Davidson, 1935; Dunn-Rankin, 1968). Others have focused on the relationship between alphabet learning and reading achievement (e.g., Gavel, 1958; Linehan, 1958; Olson, 1958; Durrell, 1958; Marchbanks & Levin, 1965). Still others have dealt with the role of phonics in alphabet learning and its subsequent relationship to reading ability (e.g., Durrell, 1958; Holmes & Singer, 1961; Singer, 1962; Chall, 1967). All these approaches investigate alphabet learning either by manipulating the manner of presentation of the letters or assessing characteristics of letter learning as they relate to subsequent reading skills. However, no one has yet assessed whether or not there are preferred orders of letter naming acquisition. Do children come to school with predilections about which letters are easiest for them to learn? The reasons for these predilections may be systematic or varied. If there are systematic patterns in our culture, then some letters should be learned consistently before others. If, on the other hand, the children come to school with backgrounds based on a wide variety of approaches to alphabet learning, then there should be no pattern across children as to the order that letters are learned. It is

important to note that we use the term alphabet learning to mean the association of letter names with graphic letter forms, both upper and lower case.

The present research attempts to answer this question by examining alphabet learning based on the number of letters the child can name correctly. Specifically, each child was shown each letter of the alphabet, both upper and lower case, and asked to name the letter. The children were then classified by the number of letters named correctly. This method permits examination of the data for patterns of letter acquisition. That is, for children who can only name one, two, three, etc. letters, is there any consistency across children as to which letters are learned first? For example, if children learn first the letters of their name, or sibling names, then correct letter identification should be approximately equally spread across most letters of the alphabet. Since few names contain the letters "x" or "q", these should be relatively low in frequency of naming, and some vowels and consonants should be somewhat higher than chance. Such an outcome would support the argument for a heterogeneity of approaches to letter name acquisition. However, if there are cultural patterns across children, then some letter or letters should have an abnormally high frequency of identifiability despite any mitigating effects of such approaches as the individual child's name acquisition.

Method

Subjects. A total of 266 children were tested on lower case alphabet recognition and 178 children were tested on upper case letter recognition.

Only those children missing one or more letters during testing were used for the present research. Those who correctly identified all letters as well as those missing all letters of the alphabet were eliminated from the data set. The characteristics of the final sample were as follows: For the lower case recognition task, nine of the 69 children tested from public kindergartens in Kansas and Kentucky were eliminated, as were 21 of the 57 children from Head Start classes in Kentucky, and 46 of 140 children from private kindergartens in Kentucky. This left a total of 180 children out of a total of 266 children tested. For the upper case letter recognition task, 26 of the 69 children tested from public kindergarten schools in Kansas and Kentucky were eliminated from the study, as were 63 of the 109 children from private kindergartens in Kentucky. Thus the data for 89 of the 178 children tested for upper case recognition were usable. The children in the final sample ranged in age from 4 years, 7 months to 6 years, 9 months.

Materials. There were two types of materials for the testing procedure. In one case, the letters were printed on 4 in. X 4 in. white flash cards with black markers, one letter per card. In the second case, all 26 letters were printed on a single 8 in. X 11 in. sheet of white paper in a random order, consisting of four rows of six letters each and one row of two letters. In all cases, the letters were printed according to the directions of the manuscript guidelines for the Patterns in Spelling and Writing (Botel, Holsclaw, and Brothers, 1975) program for the primary grades.

Procedure. The children were placed opposite the examiner. The paper was placed in front of the children and they were asked to name as many of the letters as they could when the examiner pointed to them. The examiner then began with the letter in row 1, column 1, and proceeded left to right to complete the row, proceeding then to row 2, etc. The examiner recorded the first answer on a similar sheet by circling those missed by the children. (After each missed letter, the examiner stated the correct letter name so that the children would not assume that their wrong answer was correct.)

When using flash cards, the children were placed opposite the examiner and were asked to name as many letters as possible on the cards. When the correct letter name was given, the card was placed in a pile close to the child. When the incorrect letter name was given, the card was placed in a pile close to the examiner. Results were tabulated after each child returned to play. (Again, the correct letter name was given to each incorrect answer.)

The children were given as much time as they needed and were allowed to think until they gave some indication that they did not know the answer.

Results

The proportion of children correctly identifying each letter is presented in Table 1 for lower and upper case letters. To facilitate

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Insert Table 1 About Here

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presentation, the data have been collapsed across the number of letters correctly identified. For example, the top row of Table 1 presents percentages of correct letter identification pooled across children who named between one and five letters correctly. The second row was obtained by pooling the data for children who named six to 10 letters correctly, and so on down the table. Data for children who named either all or none of the letters were excluded since they add nothing constructive. For the lower case letters, 266 children were tested and 86 of these knew none or all of the letters. For upper case letters, 178 children were tested and 89 knew all or none. An examination of the data from children who could name correctly five or fewer letters showed that the four lower case letters with the highest frequency of identification were "o", "x", "w", and "s" in descending order of frequency. These same four letters in the same relative position had the highest probability of identification when presented in upper case form, with a fifth letter, "c", also being slightly elevated.

These same four letters also had a very high frequency of correct recognition among children who could name six to 10 letters. However, at this point, several other letters showed signs of gaining recognition. These letters were "c", "e", "k", "p", and "z" for lower case and "A", "B", "K", "N", and "Q" for the upper case.

The third row of Table 1 represents children who have mastered approximately half of the names of letters of the alphabet. At this point it may be more useful to identify those letters having the lowest

frequency of recognition; that is, the more difficult letters. Examining the last three rows collectively (11-25 letters correctly identified) it appears that "b", "d", "l", and "q" are the most difficult lower case letters to learn. Of the upper case letters, the most difficult appear to be "J", "U", and "V".

Finally, the letters were rank ordered from easiest to most difficult to learn. The basis for this ranking was the percentage of correct identification pooled across all subjects. These data are presented in Table 2 separately for lower and upper case letters.

Insert Table 2 About Here

Discussion

The data provide a relatively clear picture of the order in which children learn to attach names to the letters of the alphabet. Although the pattern of outcome of the data does not immediately suggest an explanation, it does provide a basis for excluding several interpretations. First, most, if not all, children learn to say the alphabet in serial order. There are a number of songs and verses designed to teach children the alphabet that present the letters in alphabetical order. Learning to say letter names by rote and attaching these names to graphic symbols are not the same process. Children apparently do not attach names to letter in serial order. If they did, one would expect to find the typical serial position curve associated with such tasks (Glanzer and Cunitz, 1966; Mur-

dock, 1962). The serial position curve is characterized by learning the initial items in the series first (primacy effect), the last items next (recency effect), and the middle items last. Table 2 shows that this did not happen. There is no hint of this serial position pattern in the data.

Second, it can be ruled out that children learn letter names based on frequency of occurrence in the language. If children used such a strategy, then certain vowels and consonants such as "R", "T", and "S" should be among the first letters learned. Current data suggests that several vowels are learned first, particularly "O", but others are acquired relatively late (e.g., "u" and "e" in lower case and "E", "I", and "U" in upper case). Similarly, the fact that "x" and "w" appear to be among the first letters learned mitigates against this explanation since they occur relatively infrequently in the language.

A third possible explanation of the sequence of acquisitions is a process of differentiation of critical features, as outlined by Eleanor J. Gibson. The letters first visually discriminated are of the break and close type ("C" and "O"); second come those with line to curve formations ("U" and "V"); third come those of rotation ("M" and "W") and reversal ("b" and "d") since they are not critical for object identification (Gibson, 1973). The letters "X" and "O" are the first learned; they are indeed "X" and "O" no matter what transformation is made. The letter "S" comes next in lower case and fourth in upper case. When reversed, "S" resembles a "2", and it resembles a "5" when presented in a normal fashion. The fifth letter acquired in lower case is "w", which when rotated becomes

"m", a visual discrimination which, according to Gibson, should be relatively difficult. Thus it would seem that those factors important in visual discrimination are not necessarily those involved in the association of letter names to graphic symbols.

Many preschool programs have, in the past, taught upper case letters first, presumably for their ease of writing by the small hand. If this still is the case and we were to assume the upper case were learned first, we could look at the lower case to see which letters were identical except in size or position in both sets. The letters "o", "x", "s", "w", "p", "c", "z", "v", "u", and possibly "k", "j", and "y" have a high degree of correspondence between upper and lower case. Except for "v" and "u" these letters are the first acquired or most frequently named lower case letters. However, an examination of Table 2 shows that "U" and "V" are the last two upper case letters acquired. Perhaps, then, the child is given twice as much instruction in these duplicate letters.

Such an assumption leads one to examine only those letters that do not have duplicates in upper and lower case forms. Table 3 presents a

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Insert Table 3 About Here

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rank ordering by percent correct recognition for letters without duplicates. Again, among these letters there is little, if any, consistent data in favor of any of the three possible explanations outlined above. Serial position effects are not evident, especially in lower case. Let-

ters that occur frequently in the language are not necessarily learned first, nor do visual discrimination factors appear to explain the patterns obtained.

The lack of any single explanation for the data suggests that unique factors may be operating in the naming of each letter of the alphabet. Nonetheless, the data do provide a relatively clear picture of the order in which letter names are acquired. This information may be useful to those individuals involved in the instruction of alphabet learning. The data provide a basis for some decisions about the order in which letter names may be taught.

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Table 1

Proportion of Correct Letter Naming

Lower Case

No. of Students	No. of Correct Letters	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
50	1 - 5	.00	.08	.08	.02	.04	.00	.00	.08	.06	.12	.18	.02	.10	.06	.52	.14	.02	.08	.24	.06	.02	.02	.26	44	.08	.12
25	6 - 10	.08	.08	.52	.08	.47	.04	.04	.12	.28	.36	.56	.00	.24	.09	.92	.56	.08	.24	.92	.16	.08	.16	.40	.84	.20	.48
30	11 - 15	.17	.13	.90	.10	.73	.37	.17	.23	.47	.70	.80	.10	.57	.30	1.00	.80	.03	.47	.97	.40	.40	.33	.77	.97	.67	.70
25	16 - 20	.36	.44	.96	.28	.96	.60	.44	.44	.96	.84	.96	.16	.84	.52	1.00	.92	.24	.84	.96	.64	.52	.56	.96	.96	.84	.92
50	21 - 25	.94	.62	.96	.46	.92	.88	.84	.84	1.00	1.00	1.00	.52	1.00	.88	1.00	1.00	.58	.98	.98	.96	.80	.96	.94	1.00	.98	1.00
180	1 - 25	.35	.29	.64	.20	.59	.39	.33	.37	.54	.59	.67	.19	.55	.39	.36	.65	.22	.52	.76	.46	.37	.43	.65	.81	.55	.62

Upper Case

No. of Students	No. of Correct Letters	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
21	1 - 5	.10	.14	.19	.00	.05	.10	.00	.14	.10	.14	.10	.10	.14	.00	.43	.10	.05	.10	.19	.00	.00	.00	.19	.24	.05	.05
15	6 - 10	.73	.47	.47	.07	.20	.13	.13	.27	.00	.27	.53	.00	.27	.40	.80	.20	.47	.27	.67	.13	.13	.20	.40	.93	.20	.33
12	11 - 15	.92	1.00	.50	.25	.42	.33	.08	.25	.17	.58	.88	.33	.25	.17	.92	.50	.50	.59	.92	.58	.17	.17	.42	.92	.33	.67
13	16 - 20	1.00	.85	.92	.77	.77	.54	.38	.85	.40	.62	.62	.62	.77	1.00	1.00	.92	.62	.92	.92	.54	.15	.38	.92	.92	.54	.85
28	21 - 25	1.00	.86	.96	.89	1.00	.96	.82	.96	.86	.64	.96	.96	.79	.89	1.00	.93	.96	.93	1.00	1.00	.61	.61	.89	.96	.75	.86
89	1 - 25	.73	.64	.63	.44	.53	.47	.35	.54	.38	.45	.62	.46	.47	.52	.82	.55	.55	.57	.73	.49	.26	.30	.58	.71	.40	.56

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Table 2

Rank Order of Alphabet Letters Based Upon Percentage of Children Correctly Naming the Letter

Lower Case		Upper Case	
Percentage	Letter	Percentage	Letter
86	o	82	O
81	x	78	X
76	s	73	A
67	k	73	S
65	w	64	B
65	p	63	C
64	c	62	K
62	z	58	W
59	j	57	R
59	e	56	Z
55	y	55	Q
55	m	55	P
54	i	54	H
52	r	53	E
46	t	52	N
43	v	49	T
39	n	47	M
39	f	47	F
37	u	46	L
37	h	45	J
35	a	44	D
33	g	40	Y
29	b	38	I
22	q	35	G
20	d	30	V
19	l	26	U

Table 3

Percentage of Correct Naming for

Letters Without Duplicates

Lower Case		Lower Case	
Percentage	Letter	Percentage	Letter
59	e	73	A
55	m	64	B
54	i	57	R
52	r	55	Q
46	t	54	H
39	h	53	E
39	f	52	N
37	h	49	T
35	d	47	M
33	g	47	F
29	b	46	L
22	q	44	D
20	d	38	I
19	l	35	G